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EXAMINER
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STRANGE, AARON N

ART UNIT	PAPER NUMBER
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2153

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/591,245

Applicant(s)

KIM, JUNG-GI

Examiner

Aaron Strange

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4,7,8,11-14,16,26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7,8,11-14,16,26 and 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 3/9/05 have been fully considered but they are not persuasive.
2. With regard to claim 13, and Applicant's assertion that Harada "fails to disclose, or even to suggest, that a camera attachment performs 'attaching a storage address information of said first memory means to said updated firmware'" (Page 8, Lines 11-13 of Remarks), the Examiner respectfully disagrees.

Applicant's characterization of the cited section (Page 8, Lines 3-7 of Remarks) of Harada is incorrect. Applicant refers to Col 6, Lines 57-59, which were not cited by the Examiner. The cited section, Col 7, Lines 49-54, clearly states "if the rewrite instruction is the one for the bank b, the contents of bank b are rewritten". Harada discloses that this determination is made after determining whether the rewrite instruction has been set "ON" (Col 7, Lines 36-39). Harada goes on to state "On the other hand, if the rewrite instruction is the one for bank a" (Col 7, Lines 55-57), the flash memory program is copied to bank b.

Therefore, Harada does disclose attaching a storage address (the address of the bank to be rewritten) information of said first memory means to said updated firmware.

3. With further regard to claim 13, and Applicant's assertion that "Harada fails to disclose or suggest, with respect to bank a 4, 'storing a boot program, operating codes,

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and said operating system firmware” (Page 2, Lines 16-17 of Remarks), the Examiner respectfully disagrees. With regard to Applicant’s assertion that the clearing of bank a 4 “would presumably destroy any hypothetical boot program” (Page 2, Lines 19-20 of Remarks), the Examiner respectfully disagrees. Harada clearly discloses that the bank is cleared only as part of a rewrite operation that will replace the contents of the bank with an updated version, so no programs would be destroyed. Harada discloses that bank a contains a flash rewrite control program (loader), which is a boot program, comprising operating system codes, for loading camera control programs (Col 4, Lines 57-36).

4. With regard to claim 8, and Applicant’s assertion that Harada “loads the control program into bank b 5 (s118) based on a determination that the rewrite target is bank b (Col 7, Lines 49-52)” (Page 9, Lines 10-11 of Remarks), the Examiner agrees. However, the claim refers to the firmware stored in the first memory means as being updated. When updating the firmware stored in the first memory means (bank a), the proper section of Harada is Col 7, Lines 55-63, which teaches the limitations of claim 8, as has been presented in the rejection below.

5. With regard to claim 1, Applicant’s arguments are unclear. Applicant states that “Harada shows that upgrading if performed in flash memory”, but later states that Harada “uses a loader in RAM to store the acquired data” (Page 9, Lines 19-22 of Remarks), but goes on to argue that claim recites storing the production file in flash

memory using a program in flash memory. It is unclear what, if anything, Applicant asserts is not taught by Harada. In any event, Harada clearly discloses that the production-processing program used to update the programs in flash memory is stored in flash memory (Col 4, Lines 57-63).

6. With regard to claim 1, and Applicant's assertion that Irons "relates to cache memory 'for temporarily holding the most recently accessed data' (col 2, lines 23-25) when the 'same data is repeatedly operated upon' (lines 27-28), i.e., conventional cache memory" (Page 9, Line 24 to Page 10, Line 2 of Remarks), the Examiner respectfully disagrees. The sections of Irons cited by Applicant are taken from the "Background of the Invention" section of Irons and are describing known prior art techniques, not descriptions of the techniques taught by Irons. Irons teaches copying software from flash memory to RAM in order to upgrade the software in RAM and storing the software back in flash memory. This provides several advantages such as faster upgrading since RAM is significantly faster to use than flash memory is.

7. With regard to claim 14, and Applicant's assertion that Harada fails to disclose or suggest that the production file includes a header portion containing a storage address of the flash memory (Page 10, Lines 13-16 of Remarks), the Examiner respectfully disagrees. Harada discloses checking a storage address of the flash memory (rewrite target) in Col 7, Lines 49-51. With regard to Applicant's assertion that the cited section of Harada merely relates to "determining whether the rewrite instruction is for the loader

or the control program”, the Examiner respectfully disagrees. The cited section discloses checking the rewrite target of the production file to determine the storage address (bank a or bank b).

8. With regard to Applicant’s assertion that claim 27 depends from claim 8 (Page 11, Lines 1-2 of Remarks), it is noted that claim 27 has been written in independent format and does not depend from claim 8 as currently written. It has accordingly been treated as an independent claim since it claims an apparatus that is distinct from the firmware board. If Applicant intends for claim 27 to depend from claim 8, it must be amended into proper dependent format.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1,2,4,7,26, and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. With regard to claim 1, the amendments to claim 1 are insufficient to overcome the 35 USC 112 2<sup>nd</sup> Paragraph rejection presented in the Office action of 12/7/04. Applicant’s characterization of the rejection as being “with regard to the use of the word

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'upgrading' in different contexts" is inaccurate. The rejection was made since it is unclear how the production-processing program and the production file are related, and the relationship remains unclear.

As best understood by the Examiner, the production file is a newer version of "a program stored in a firmware board" (preamble). It is unclear if the "program stored in a firmware board" is intended to be the same program as the production-processing program. In lines 10-12 of claim 1, it appears that the DRAM stores a copy of the production-processing program and the production-processing program is upgraded in the DRAM. In lines 13-14, the PC stores the production file in the flash memory using the production-processing program in the flash memory. It is unclear if the production file overwrites the production-processing program or goes to a different location in the flash memory. It is also unclear if "replacing, with a newer version, a program" (lines 1-2) is intended to be the same operation as "upgrading the production-processing program" (line 11).

Page 8, lines 5-13 of the present application appears to be describing the subject matter of claim 1, wherein the production-processing program is copied into DRAM, upgraded in DRAM, and copied back to flash memory. If claim 1 is intended to substantially correspond to this section of the specification, the Examiner recommends that the claim be amended to more clearly show these steps and the relationship between the production file and the production-processing file.

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12. With regard to claim 27, the combination of a reference to a portion of claim 8 (said updated firmware of claim 8) in the preamble of the claim and the entirety of claim 8 (said firmware board of claim 8) in the body of claim 27 renders the claim indefinite. It is unclear what limitations from claim 8 are intended to be part of claim 27.

The Examiner recommends that the claim be amended to replace "said updated firmware of claim 8" with "updated firmware".

13. Claim 27 recites the limitation "said computer for transferring data" in line 5. There is insufficient antecedent basis for this limitation in the claim. It is unclear if "said computer for transferring data" is the personal computer, the host computer or a third computer.

14. With further regard to claim 27, the limitation "said computer for transferring data including at least one personal computer coupled to said host computer" is unclear. It is unclear how a computer may include more one or more personal computers coupled to a host computer.

15. With further regard to claim 27, the limitation "said updated firmware downloaded from said host computer" in lines 6-7 is unclear. The preamble states that an apparatus upgrades the firmware of a personal computer by downloading "said updated firmware". It is unclear how the apparatus may download the firmware from the host computer if the host computer is part of the apparatus.



16. All claims not individually rejected are rejected by virtue of their dependency from the above claims.

***Claim Rejections - 35 USC § 102***

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

18. Claims 8,13, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Harada (US 6,195,511).

19. With regard to claim 8, Harada discloses a firmware board comprising:

a communication interface means (fig. 2a, item 26) connected for communicating with a computer and for transferring data between said computer and said firmware board (col. 5 lines 23-24, col. 3 lines 58-62);

a first memory (fig. 2a, item 3) means coupled to said communication means for storing operating system firmware (fig. 2a, "bank a", col. 4 lines 57-63); and

a second memory means coupled to said first memory means for storing a copy of information stored in said first memory means to be replaced with updated firmware (fig. 2a, "bank b", col. 7 lines 55-63);

said firmware board being operable to receive said updated firmware, and to select between the first and second memory means such that a production-processing program operates in the selected memory means in storing the received firmware into a corresponding region of said first memory means (loader is copied to bank b, modified, and copied back to bank a), the selection being based on an analysis (check rewrite target) of the transmitted firmware by said production-processing program residing in said first memory means (if firmware destination is bank a, select second memory means to hold loader while modifying)(Col 7, Lines 55-63).

20. In referring to claim 13, Harada shows a memory alternation system for a camera and its control method by downloading and rewriting contents of a flash memory bank with newly updated contents. Harada utilizes at least two memory banks for storing and executing rewrite and control programs. Harada teaches the following features:

- a host computer for converting an execution file prepared by an operator into said updated firmware (fig. 1a-f, 101-106; fig. 2b, col. 5 lines 62-col. 6 lines 6);
- at least one personal computer (camera, 100) coupled to said host computer for receiving said new firmware downloaded from said host computer (fig. 2a and 2b, item 29, col. 5 lines 24-26);
- a firmware board having (camera MPU, 1);

- a communication interface means (fig. 2a, item 26) connected for communicating with said personal computer and for transferring data between said personal computer and said firmware board (col. 5 lines 23-24, col. 3 lines 58-62);
- a first memory (fig. 2a, item 3) means coupled to said communication means for storing a boot program, operating codes, and said operating system firmware (fig. 2a, "bank a", col. 4 lines 57-63); and
- a second memory means coupled to said first memory means for storing a copy of information stored in said first memory means to be replaced with said updated firmware (fig. 2a, "bank b", col. 7 lines 55-63);

wherein said personal computer is further operable for transmitting to the firmware board said updated firmware downloaded from said host computer and wherein, based on an analysis (rewrite processing) of the transmitted firmware by a production-processing program in said first memory means, the production-processing program operates in either the first or second memory means in storing the transmitted firmware into a corresponding region of said first memory means (col. 7 lines 36-63), wherein said host computer is further operable for attaching a storage address (rewrite target) information of said first memory means to said updated firmware (col. 7 lines 49-54).

21. Claim 27 is rejected for the same reasons as claims 8 and 13 above, since it recites similar subject matter.

***Claim Rejections - 35 USC § 103***

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. Claims 1, 2, 4, 7, 14, 16, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over unpatentable over Harada in view of Irons (US 6,272,587).

24. In referring to claim 1, Harada shows an apparatus for replacing, with a newer version, a program stored in a firmware board, said apparatus comprising:

- a host computer for converting an execution file prepared by an operator into said updated firmware (fig. 1a-f, 101-106; fig. 2b, col. 5 lines 62-col. 6 lines 6);
- a flash memory (3) disposed in the firmware board (6) for storing a production-processing program("bank a" flash rewrite control program, col. 4 lines 57-59);
- a personal computer (PC) (camera 100) for receiving the production file downloaded from the host computer and for storing the downloaded file, as said newer version, in a corresponding region of the flash memory (col. 6 lines 47-60); and
- wherein the PC stores the production file in the flash memory using the production-processing program in the flash memory (col. 7 lines 55-63, Note: loader is executed from "bank b" of flash memory in order to store new loader into "bank a").

Although Harada shows substantial features of the claimed invention, Harada does not show a *DRAM for storing a copy of the production-processing program from the flash memory when upgrading the production-processing program so that the upgrading can be performed in the DRAM*. Nonetheless this feature is well known and would have been an obvious modification to the system shown by Irons.

In an analogous art, Irons shows a method for upgrading a flash memory utilizing a RAM cache. Irons shows a RAM cache for storing a copied portion of the flash memory when upgrading the flash memory so that upgrading can be performed in RAM (col. 5 lines 57-59, col. 6 lines 29-44).

Given this feature, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Harada to employ the features shown by Irons in order to process updates to flash memory in the RAM cache which is much faster (see Irons, col. 2 lines 25-30 and 57-63).

Although Harada and Irons do not specifically shows a Dynamic Random Access Memory, this feature would have been obvious to a person having ordinary skill in the art who would recognize the advantages and desirability of modifying Harada and Irons by including the limitation of (1) Dynamic RAM or (2) Static RAM in order to:

(1) allow for the system to hold more data than when using RAM and to reduce system cost; and

(2) improve the systems efficiency by increasing speed and reducing power consumption.

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25. In referring to claim 2, Harada shows first memory comprising a flash memory, and a communication means (col. 4 lines 57-63, col. 5 lines 23-24). Although Harada and Irons do not specifically show a RS232C line, this features would have been obvious to a person having ordinary skill in the art who would recognize the advantages and desirability of modifying Harada and Irons by including the limitation of RS232C line in order to conduct standard serial transmission between computer and peripheral devices using a 25-pin DB-25 or 9-pin DB-9 connector, extendable to several hundred feet with high-quality cable.

26. In referring to claim 4, Harada shows camera transmits the production file to the flash memory when a transmission command is inputted thereto (rewrite instruction "ON", col. 7 lines 36-40).

27. In referring to claim 7, Irons shows upgraded production processing program in the DRAM is transferred back to the flash memory (col. 6 lines 29-31).

28. In referring to claim 14, Harada shows:

- providing a flash memory (3) in the firmware board (1) for storing a production-processing program (loader program, col. 4 lines 57-63);
- creating, by a host computer, a file for a production by converting an execution file prepared in advance into the file for production (col. 5 lines 62- col. 6 line 6, fig. 2b, 101-106);

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- receiving the production file, by a personal computer (PC), downloaded from the host computer (col. 6 lines 47-60); and, storing the production file in the corresponding region of the flash memory,
- wherein the production file includes a header portion containing a storage address of the flash memory (rewrite target, col. 7 lines 49-51), a compression state (col. 8 lines 32-45), and a booting state (On/Off, col. 6 lines 32-38) for the production file.

Although Harada shows substantial features of the claimed invention, Harada does not show *the method comprising the step of duplication the production-processing program in the DRAM/SRAM while upgrading the production processing program in the DRAM/SRAM*. Nonetheless this feature is well known and would have been an obvious modification to the system shown by Irons.

In an analogous art, Irons shows a method for upgrading a flash memory utilizing a RAM cache. Irons shows a RAM cache for storing a copied portion of the flash memory when upgrading the flash memory so that upgrading can be performed in RAM (col. 5 lines 57-59, col. 6 lines 29-44).

Given this feature, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Harada to employ the features shown by Irons in order to process updates to flash memory in the RAM cache which is much faster (see Irons, col. 2 lines 25-30 and 57-63).

Although Harada and Irons do not specifically shows a Dynamic Random Access Memory, this feature would have been obvious to a person having ordinary skill in the

art who would recognize the advantages and desirability of modifying Harada and Irons by including the limitation of (1) Dynamic RAM or (2) Static RAM in order to:

(1) allow for the system to hold more data than when using RAM and to reduce system cost; and

(2) improve the systems efficiency by increasing speed and reducing power consumption.

29. In referring to claim 16, Harada shows camera transmits the production file to the flash memory when a transmission command is inputted thereto (rewrite instruction "ON", col. 7 lines 36-40).

30. In referring to claim 26, Harada shows prior to creation of the file for production, host computer attaches a storage address of the flash memory (rewrite target, col. 7 lines 49-51), a compression state (col. 8 lines 32-45), and a booting state (On/Off, col. 6 lines 32-38) for the production file.

31. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harada.

32. In referring to claim 11, Harada shows said second memory means comprises a RAM (fig. 8). Although Harada does not specifically shows a Dynamic Random Access Memory, this feature would have been obvious to a person having ordinary skill in the



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art who would recognize the advantages and desirability of modifying Harada by including the limitation of (1) Dynamic RAM or (2) Static RAM in order to:

(1) allow for the system to hold more data than when using RAM and to reduce system cost; and

(2) improve the systems efficiency by increasing speed and reducing power consumption.

33. In referring to claim 12, Harada shows first memory comprising a flash memory, and a communication means (col. 4 lines 57-63, col. 5 lines 23-24). Although Harada does not specifically show a RS232C line, this features would have been obvious to a person having ordinary skill in the art who would recognize the advantages and desirability of modifying Harada by including the limitation of RS232C line in order to conduct standard serial transmission between computer and peripheral devices using a 25-pin DB-25 or 9-pin DB-9 connector, extendable to several hundred feet with high-quality cable.

### ***Conclusion***

34. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

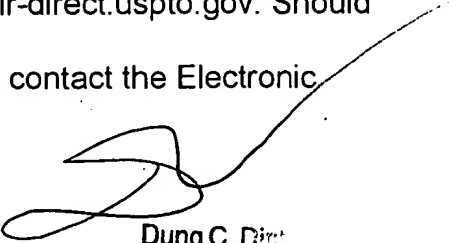
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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Strange whose telephone number is 571-272-3959. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dung C. Dinh  
Primary Examiner

AS  
5/25/2005